CHAPTER 5

PHARMACEUTICAL CARE CONCEPT

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The pharmaceutical care is defined as “the responsible provision of drug therapy for the purpose of achieving definite therapeutic outcomes that improve the patients quality of life”.
OUTCOMES

1. Cure of a disease
2. Elimination or reduction of patients symptomology
3. Arresting or slowing of a disease process
4. Preventing a disease or symptoms
Pharmaceutical care involves the process through which a pharmacist cooperates with a patient and other professional in designing, implementation, and monitoring a therapeutic plan that will produce specific therapeutic outcomes for the patient. This in turn involves three major functions.
MAJOR FUNCTIONS OF PHARMACEUTICAL CARE

1. Identifying potential and actual drug related problems
2. Resolving actual drug related problems
3. Preventing potential drug related problems
Pharmaceutical care is important element of health care and should be integrated with other elements of health care. Pharmaceutical care is however provided for the direct benefit of the patient and the pharmacist is responsible directly to the patient of that care.
He must possess knowledge and skill in pharmaceutics and clinical pharmacology.

He must be able to mobilize the drug distribution system by which drug use decisions are implemented.

He must be able to develop relationship with the patients and other health care professionals needed to provide pharmaceutical care.

He must be available in the society /community for patient in time.

He should have commitment to quality improvement and assessment procedure.
PROCESS OF PHARMACEUTICAL CARE
Establish pharmacist-patient relationship

Collect data

Interpret data

Identify drug related problems

Determine priority of drug related problems

Determine desired outcomes (clinical or therapeutic)

Develop therapeutic plan

Develop monitoring plan

Implement and follow up pharmaceutical care plan
The pharmacist must collect and generate subjective and objective information regarding the patients' general health and activity status, past medical history, medication history, social history, diet, exercise; study, history of present illness and economic situations. Sources of information may include, but not necessarily limited to, the patient's medical charts and reports, the pharmacist conducted health physical assessment, the patient's family or caretaker, insurers, and other healthcare providers like his doctors, nurse, and his regular pharmacists to whom he goes.
Elements of Patients Information Data

- **Demographics**: Age, sex, race, height-weight
- **Current Problems**: Signs and symptoms
- **Past Medical History**
- **Allergies and Intolerance**
- **Pregnancy and Lactation Status**
- **Habits**
- **Economic Conditions**
- **Relevant Lab Data**
IDENTIFICATION OF PROBLEMS
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The data collected can be used to identify actual or potential drug-related problems. Since the main focus of pharmaceutical care is patient and since the pharmacist attends the patient, it follows that the pharmacist only can tackle all drug-related problems. These problems may be related to the patient's current drug therapy, drug administration, drug compliance, drug toxicity, adverse drug reactions, and failure to achieve desired outcomes by the treatment. It is estimated by USFDA that 12000 deaths and 15000 cases of hospitalization in the USA were due to the ADR.
**Drug related morbidity**

- DRM (drug related morbidity) is a phenomenon of therapeutic malfunction. It is a **failure of a therapeutic agents** or agents together to produce intended therapeutic outcome. The concept of DRM includes both **treatment failure** and production of a **new medical problem**, like ADR or **toxic drug effect**. If DRM is not recognized in time it may lead to **drug related mortality** which is ultimate disaster.
**Examples of Drug Related Problems**

<table>
<thead>
<tr>
<th>Drug related problems</th>
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<tbody>
<tr>
<td>*New or additional drug required</td>
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<tr>
<td>*Wrong drug</td>
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<tr>
<td>*Too little of the right drug</td>
</tr>
<tr>
<td>*Too much of the right drug</td>
</tr>
<tr>
<td>*Adverse drug reaction</td>
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<tr>
<td>*Drug not taken appropriately</td>
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<tr>
<td>*Medication not indicated</td>
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ESTABLISHING OUTCOME GOALS
Drug therapy can produce a range of positive clinical outcomes; it may also result in negative outcomes, resulting in disease morbidity and even in extreme case mortality. Clearly, the potential clinical outcomes are related to the disease being treated and the efficacy of the available drug treatments.

<table>
<thead>
<tr>
<th>DISEASE</th>
<th>POSITIVE OUTCOMES</th>
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<tbody>
<tr>
<td>Hypertension</td>
<td>Decreased risk of MI stroke arrhythmia</td>
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<tr>
<td>Ischemic heart disease</td>
<td>Fewer MI angina attacks reduced risk of sudden death</td>
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<tr>
<td>Peripheral vascular disease</td>
<td>Better circulation decreased need of circulation</td>
</tr>
<tr>
<td>Diabetes</td>
<td>Fewer hypoglycemic events less compliance of kidney or vision</td>
</tr>
<tr>
<td>Asthma</td>
<td>Fewer acute attacks less occasions of hospitalization</td>
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ESTABLISHING OUTCOME GOALS

- Important consideration taken into account
  1. Patients expectation of the treatment
  2. Patient's suitability for the treatment
  3. All his resources to meet the cost of the treatment

A patient may have a curable disease but his other concurrent ailment may prevent the most effective treatment to be given.

Example:- A DM patient may not be given steroids for severe allergy as it will aggregate his condition.

An Asthma patient also having DM cannot be treated with steroids for his chronic airflow obstruction.
Similarly, non-availability of certain most effective drugs that cannot be prescribed due to hospitals DTC, decisions putting restrictions on the number of drugs per prescription or strict antibiotic policy.

Therefore, it is necessary to educate the patient for the potential outcomes of drug therapy – positive or negative – so that he can make an informed decision.
EVALUATING TREATMENT ALTERNATIVES BY MONITORING AND MODIFYING THERAPEUTIC PLAN:
While evaluating treatment alternatives or therapeutic options the following factors have to be considered such as efficacy and safety availability and cost of treatment and suitability of the treatment to the patient. Efficacy and safety must be considered when evaluating the risk benefit ratio of a particular treatment. The risk – benefit ratio will depend upon many factors. Some of the factors are:

- Seriousness of disease
- Consequences of not treating the disease
- The efficacy of the drug.
- ADRs associated with the drug therapy
- Efficacy of alternative drug or non-drug therapy
- Side effect profile of alternative drugs.
Evaluating treatment alternatives by monitoring and modifying therapeutic plan:

- The pharmacists role especially clinical pharmacists role is increasingly becoming more evident in evaluating therapeutic options, modifying and monitoring therapeutic plan. Some of the case studies to support this, can be cited as follows. In one case, pharmacist monitored therapeutic plan of one group was **2.4 days shorter than the control group** in which the plan was not monitored by pharmacist. In another case study it was found that pharmacist managed group (i.e. therapeutic plan being constantly monitored by pharmacist) had significantly fewer active prescriptions, significantly more discharges from hospitals and significantly fewer deaths. The pharmacists managed group also had a less number of hospitalizations than the control group had. The net monetary savings between the two groups was **7000 dollars per patient**.
INDIVIDUALIZING DRUG REGIMEN:
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<table>
<thead>
<tr>
<th>Patient factors</th>
<th>Drug factors</th>
</tr>
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<tbody>
<tr>
<td>1. Diagnosis</td>
<td>1. Efficacy</td>
</tr>
<tr>
<td>2. Treatment goals</td>
<td>2. Adverse effects</td>
</tr>
<tr>
<td>3. Physiological and pathological factors</td>
<td>3. Prevalence, ability to minimize</td>
</tr>
<tr>
<td>4. Past medical history, past medicines received</td>
<td>4. Ability to monitor for efficacy and avoid ADR</td>
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<tr>
<td>5. Contraindication</td>
<td>5. Drug-drug interactions</td>
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<tr>
<td>6. Allergies and adverse effects</td>
<td>6. Pharmacokinetics and pharmacodynamics</td>
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<tr>
<td>7. Patient compliance</td>
<td>7. Dosage form</td>
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<tr>
<td>8. Patients cooperation and convenience</td>
<td>8. Route and method of administration</td>
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<tr>
<td>9. Special consideration</td>
<td>9. Cost to the patient</td>
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<tr>
<td></td>
<td>10. Government or insurance company payments, presentation of bills in their formats.</td>
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MONITORING OUTCOMES:
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The goals of any therapeutic treatments are obviously the following:

- To cure the disease
- To eliminate or reduce patients symptoms
- To arrest or slow down disease process
- To prevent the disease or its symptoms to reappear
**Monitoring outcomes:**

But often suboptimal result due to the following broad reasons, some of which are circumstantial, like the following:

- Inappropriate prescribing
- Inappropriate or unnecessary drug regimen
- Inappropriate drug regimen
- Drugs not available, dispensing error.
- Inappropriate behavior of the patient
- Inappropriate compliance or non-compliance of the drug treatment
- Patient idiosyncrasy
- Inappropriate monitoring
**Monitoring outcomes:**

- Inappropriate monitoring is often cited as a major cause for therapeutic failure. It leads to failure to detect and resolve inappropriate therapy decisions; and or failure to monitor for the drugs with narrow therapeutic index.

- Example if digitalis or theophylline IV delivery is not followed by TDM, either the desired outcome to stop arrhythmia (by digitalis), or shortness of breath (by theophylline) is not achieved or worst a digitalis or theophylline toxicity may develop, due to overdose.
Monitoring outcomes involve monitoring four S’s

- These are
- **SIGNS,**
- **SYMPTOMS,**
- **SIDE EFFECTS,**
- **SEQUELAE**(CONSEQUENCES)

This applies to all diseases
DOCUMENTATION OF INFORMATION
One of the jobs of a pharmacist as outlined above, is to regularly update records of the patient with documentation. This is a critical component of pharmaceutical care. Documenting the provision of pharmaceutical care is important for many reasons, but the primary reason is to improve the quality of patient care. Documentation provides a record of care provided and history of the decision made for a specific patient. IF IT IS NOT DOCUMENTED, IT IS NOT DONE.